

Item	Units	Qty	Unit Cost	Cost
1-Prewired control Panels				
2-Clarifier tank with effluent trough				
Coarse Bubble Diffuser System for				
Aerated Sludge Chamber				
Aluminum walkway, grating, handrails, and steps				
2-Set of belts/sheaves for blowers				
1-Manual hoist for mixers				
2-Ferric sulfate feed system				
1-Portable dissolved oxygen meter				
Concrete Tanks	CY	182	\$566	\$103,012
Filtration				
2-Microscreen filters	EA	2	\$37,775	\$75,550
Filter Pad	CY	10	\$500	\$5,000
Effluent Disinfection				
Sodium Hypochlorite Feed System	LS	1	\$6,400	\$6,400
Chemical storage area, includes Concrete, piping, and roofing	LS	1	\$7,016	\$7,016
Chlorine contact tank	CY	56	\$564	\$31,584
Generator/blower/control building	SF	625	\$125	\$78,125
Generator	EA	1	\$40,222	\$40,222
Effluent Disposal				
Shallow Injection Wells	EA	3	\$6,000	\$18,000
SUB-SUB-TOTAL				\$765,225
Site work	%	10		\$76,522.50
* Electrical	%	15		\$114,783.75
* Yard Piping	%	15		\$114,783.75
Contingency	%	20		\$153,045.00
SUB-TOTAL				\$1,224,360
TOTAL				\$3,257,428

**Opinion of Probable Construction Cost for Construction of a New FKAA Sub-Regional
Wastewater Treatment Plant for Rockland Key Using SBR Treatment**

Item	Units	Qty	Unit Cost	Cost
Collection System				
Vacuum Station	EA	1	\$630,518	\$630,518
Vacuum Valves	EA	63	\$6,200	\$390,600
3" Service W/ crossover connection	EA	63	\$500	\$31,500
Spare Parts & Startup	LS	1	\$87,000	\$87,000
Buffer Tanks				
Single	EA	1	\$3,000	\$3,000
Dual	EA	0	\$4,000	\$0
Quad	EA	0	\$8,000	\$0
Vacuum Main				
4" Line	LF	9720	\$45	\$437,400
6" Line	LF	5460	\$50	\$273,000
8" Line	LF	0	\$60	\$0
10" Line	LF	0	\$60	\$0
Force Main				
6" Line	LF	150	\$45	\$6,750
8" Line	LF	0	\$50	\$0
10" Line	LF	0	\$60	\$0
Valves				
4"	EA	8	\$1,000	\$8,000
6"	EA	1	\$1,500	\$1,500
8"	EA	0	\$2,000	\$0
Restoration Items				
Driveway Restoration	LF	2500	\$30	\$75,000
Sodding	LF	4800	\$6	\$28,800
Asphalt Restoration	LF	2000	\$30	\$60,000
SUB-SUB-TOTAL				\$2,033,068
Bar Screen				
Automatic mechanical bar screen	EA	1	\$79,858	\$79,858
Mechical Screen Structure	LS	1	\$25,000	\$25,000
Equipment Package Includes	LS	1	\$445,878	\$445,878
1-Submerged bar screen				
4-15 hp Blowers				
Bubble diffuser system for Reactors				
1-Prewired control Panel for Reactors				
Bubble diffuser system for Digester				
4-5 hp Blowers				

Opinion of Probable Construction Cost for Expansion of the KWRU Wastewater Treatment
Plant Using USBF Treatment

Item	Units	Qty	Unit Cost	Cost
Collection System				
Vacuum Station	EA	3	\$630,518	\$1,891,554
Vacuum Valves	EA	604	\$6,200	\$3,744,800
3" Service W/ crossover connection	EA	604	\$500	\$302,000
Spare Parts & Startup	LS	1	\$161,000	\$161,000
Buffer Tanks				
Single	EA	4	\$3,000	\$12,000
Dual	EA	1	\$4,000	\$4,000
Quad	EA	1	\$8,000	\$8,000
Vacuum Main				
4" Line	LF	54920	\$45	\$2,471,400
6" Line	LF	11880	\$50	\$594,000
8" Line	LF	3900	\$60	\$234,000
10" Line	LF	0	\$80	\$0
Force Main				
6" Line	LF	14,925	\$52	\$776,100
8" Line	LF	0	\$56	\$0
10" Line	LF	0	\$58	\$0
Valves				
4"	EA	43	\$1,000	\$43,000
6"	EA	17	\$1,500	\$25,500
8"	EA	3	\$2,000	\$6,000
Restoration Items				
Driveway Restoration	LF	4000	\$30	\$120,000
Sodding	LF	10000	\$6	\$60,000
Asphalt Restoration	LF	1500	\$30	\$45,000
Force Main to Stock Island				
Lift Station	LS	1	\$150,000	\$150,000
8" Line	LF	23,074	\$125	\$2,884,250
Bridge Crossing	LF	2700	\$450	\$1,215,000
8" Valves	EA	15	\$2,000	\$30,000
2" Air/Vacuum Release Valves	EA	2	\$2,800	\$5,600
SUB-SUB-TOTAL				\$14,783,204
Bar Screen				
Mechical Screen Structure	LS	1	\$25,000	\$25,000
Equipment Package Includes	LS	1	\$676,034	\$676,034
1-Submerged bar screen				

Item	Units	Qty	Unit Cost	Cost
1-Automatic mechanical bar screen				
8-Airlift sludge return pumps				
4-Submersible Mixers				
Fine bubble diffuser system				
2-50 hp Blowers				
2-5 hp Blowers				
1-Prewired control Panels				
4-Clarifier tank with effluent trough				
Aluminum walkway, grating, handrails, and steps				
2-Set of belts/sheaves for blowers				
1-Manual hoist for mixers				
2-Ferric sulfate feed system				
1-Portable dissolved oxygen meter				
2-Microscreen filters				
Concrete Tanks	CY	451	\$550	\$248,050
Filtration				
Filter Pad	CY	10	\$500	\$5,000
Effluent Disinfection				
Sodium Hypochlorite Feed System	LS	1	\$6,400	\$6,400
Chemical storage area, includes Concrete, piping, and roofing	LS	1		\$10,016
Chlorine contact tank	CY	56	\$564	\$31,584
Generator/blower/control building	SF	452	\$125	\$56,500
Generator	EA	1	\$55,998	\$55,998
Effluent Disposal				
Shallow Injection Wells	EA	6	\$6,000	\$36,000
SUB-SUB-TOTAL				\$1,150,582
Site work	%	10		\$115,058
Electrical	%	15		\$172,587
Yard Piping	%	15		\$172,587
Contingency	%	20		\$230,116
SUB-TOTAL				\$1,840,931
TOTAL				\$16,624,135

**Opinion of Probable Construction Cost for Expansion of the KWRU Wastewater Treatment
Plant Using SBR Treatment**

Item	Units	Qty	Unit Cost	Cost
Collection System				
Vacuum Station	EA	3	\$630,518	\$1,891,554
Vacuum Valves	EA	604	\$6,200	\$3,744,800
3" Service W/ crossover connection	EA	604	\$500	\$302,000
Spare Parts & Startup	LS	1	\$161,000	\$161,000
Buffer Tanks				
Single	EA	4	\$3,000	\$12,000
Dual	EA	1	\$4,000	\$4,000
Quad	EA	1	\$8,000	\$8,000
Vacuum Main				
4" Line	LF	54920	\$45	\$2,471,400
6" Line	LF	11880	\$50	\$594,000
8" Line	LF	3900	\$60	\$234,000
10" Line	LF	0	\$80	\$0
Force Main				
6" Line	LF	14,925	\$52	\$776,100
8" Line	LF	0	\$56	\$0
10" Line	LF	0	\$58	\$0
Valves				
4"	EA	43	\$1,000	\$43,000
6"	EA	17	\$1,500	\$25,500
8"	EA	3	\$2,000	\$6,000
Restoration Items				
Driveway Restoration	LF	4000	\$30	\$120,000
Sodding	LF	10000	\$6	\$60,000
Asphalt Restoration	LF	1500	\$30	\$45,000
Force Main to Stock Island				
Lift Station	LS	1	\$150,000	\$150,000
8" Line	LF	23,074	\$125	\$2,884,250
Bridge Crossing	LF	2700	\$450	\$1,215,000
8" Valves	EA	15	\$2,000	\$30,000
2" Air/Vacuum Release Valves	EA	2	\$2,800	\$5,600
SUB-SUB-TOTAL				\$14,783,204
Bar Screen				
Mechical Screen Structure	LS	1	\$25,000	\$25,000
Equipment Package Includes	LS	1	\$875,688	\$875,688

Item	Units	Qty	Unit Cost	Cost
1-Submerged bar screen				
1-Automatic mechanical bar screen				
4-75 hp Blowers				
Bubble diffuser system for Reactors				
1-Prewired control Panel for Reactors				
Bubble diffuser system for Digester				
2-25 hp Blowers				
2-Adjustable Airlift Decant				
1-Prewired control Panel for Main Plant				
4-5 hp Decant Pumps				
4-0.75 hp Sludge Waste Pumps				
Bubble diffuser system for Inlet Tank				
2- 20 hp Blowers				
4-5 hp Surge/feed Pumps				
1-Prewired Control Panel for Surge Control Equipment				
2-2hp Pumps				
1-Prewired Control Panel for Decant Control Equipment				
12-16 hp Submersible Mixers				
Aluminum walkway, grating, handrails, and steps				
Set of belts for blowers				
2-Ferric sulfate feed system				
1-Portable dissolved oxygen meter				
2-Microscreen filters				
Concrete Tanks	CY	626	\$540	\$338,040
Alum Feed System	LS	1	\$48,000	\$48,000
Filtration				
Filter Pad	CY	10	\$500	\$5,000
Effluent Disinfection				
Sodium Hypochlorite Feed System	LS	1	\$6,400	\$6,400
Chemical storage area, includes Concrete, piping, and roofing	LS	1	\$10,016	\$10,016
Chlorine contact tank	CY	56	\$564	\$31,584
Generator/blower/control building	SF	842	\$125	\$105,250
Generator	EA	1	\$160,298	\$160,298
Effluent Disposal				
Shallow Injection Wells	EA	6	\$6,000	\$36,000
Sludge Drying Beds	LF	8340	\$23.25	\$193,905
SUB-SUB-TOTAL				\$1,835,181
Site work	%	10		\$183,518.10
Electrical	%	15		\$275,277.15
Yard Piping	%	15		\$275,277.15

Item	Units	Qty	Unit Cost	Cost
Contingency	%	20		\$367,036.20
SUB-TOTAL				\$2,936,290
TOTAL				\$17,719,494

**Opinion of Probable Construction Cost for Construction of a New FKAA Sub-Regional
Wastewater Treatment Plant for Big Coppitt Key Using USBF Treatment**

Item	Units	Qty	Unit Cost	Cost
Collection System				
Vacuum Station	EA	1	\$630,518	\$630,518
Vacuum Valves	EA	383	\$6,200	\$2,374,600
3" Service W/ crossover connection	EA	383	\$500	\$191,500
Spare Parts & Startup	LS	1	\$87,000	\$87,000
Buffer Tanks				
Single	EA	2	\$3,000	\$6,000
Dual	EA	1	\$4,000	\$4,000
Quad	EA	1	\$8,000	\$8,000
Vacuum Main				
4" Line	LF	31050	\$45	\$1,397,250
6" Line	LF	5750	\$50	\$287,500
8" Line	LF	3900	\$60	\$234,000
10" Line	EA	0	\$60	\$0
Force Main				
6" Line	LF	100	\$45	\$4,500
8" Line	LF	0	\$50	\$0
10" Line	LF	0	\$60	\$0
Valves				
4"	EA	21	\$1,000	\$21,000
6"	EA	11	\$1,500	\$16,500
8"	EA	3	\$2,000	\$6,000
Restoration Items				
Driveway Restoration	LF	10000	\$30	\$300,000
Sodding	LF	1500	\$6	\$9,000
Asphalt Restoration	LF	20000	\$30	\$600,000
SUB-SUB-TOTAL				\$6,177,368
Bar Screen	EA	1	\$79,858	\$79,858
Automatic mechanical bar screen	LS	1	\$25,000	\$25,000
Mechical Screen Structure	LS	1	\$526,876	\$526,876
Equipment Package Includes				
1-Submerged bar screen				
2-Airlift Sludge Pumps				
2-1.9 hp Submersible Mixers				
Fine bubble diffuser system for				
Aeration Chamber				
2-10 hp Blowers				

Item	Units	Qty	Unit Cost	Cost
1-Prewired control Panel				
2-Clarifier tanks with effluent trough				
Coarse Bubble Diffuser System for				
Aerated Sludge Chamber				
Aluminum walkway, grating, handrails, and steps				
2-Set of belts for blowers				
1-Manual hoist for mixers				
2-Ferric sulfate feed system				
1-Portable dissolved oxygen meter	CY	520	\$550	\$286,000
Concrete Tanks				
Filtration	EA	2	\$64,513	\$129,026
2-Microscreen filters	CY	14	\$500	\$7,000
Filter Pad				
Effluent Disinfection	LS	1	\$6,400	\$6,400
Sodium Hypochlorite Feed System	LS	1	\$10,016	\$10,016
Chemical storage area, includes Concrete, piping, and roofing	LS	59	\$569	\$33,571
Concrete, piping, and roofing	CY	56	\$564	\$31,584
Chlorine contact tank	SF	820	\$125	\$102,500
Generator/blower/control building	EA	1	\$40,222	\$40,222
Generator				
Effluent Disposal	EA	4	\$6,000	\$24,000
Shallow Injection Wells				\$1,302,053
SUB-SUB-TOTAL	%	10		\$130,205
Site work	%	15		\$195,308
Electrical	%	15		\$195,308
Yard Piping	%	20		\$260,411
Contingency				\$2,083,285
SUB-TOTAL				\$8,260,653
TOTAL				

**Opinion of Probable Construction Cost for Construction of a New FCAA Sub-
Regional Wastewater Treatment Plant for Big Coppitt Key Using SBR**

Item	Units	Qty	Unit Cost	Cost
Collection System				
Vacuum Station	EA	1	\$630,518	\$630,518
Vacuum Valves	EA	383	\$6,200	\$2,374,600
3" Service W/ crossover connection	EA	383	\$500	\$191,500
Spare Parts & Startup	LS	1	\$87,000	\$87,000
Buffer Tanks				
Single	EA	2	\$3,000	\$6,000
Dual	EA	1	\$4,000	\$4,000
Quad	EA	1	\$8,000	\$8,000
Vacuum Main				
4" Line	LF	31050	\$45	\$1,397,250
6" Line	LF	5750	\$50	\$287,500
8" Line	LF	3900	\$60	\$234,000
10" Line	EA	0	\$60	\$0
Force Main				
6" Line	LF	100	\$45	\$4,500
8" Line	LF	0	\$50	\$0
10" Line	LF	0	\$60	\$0
Valves				
4"	EA	21	\$1,000	\$21,000
6"	EA	11	\$1,500	\$16,500
8"	EA	3	\$2,000	\$6,000
Restoration Items				
Driveway Restoration	LF	10000	\$30	\$300,000
Sodding	LF	1500	\$6	\$9,000
Asphalt Restoration	LF	20000	\$30	\$600,000
SUB-SUB-TOTAL				\$6,177,368
Bar Screen				
Automatic mechanical bar screen	EA	1	\$79,858	\$79,858
Mechical Screen Structure	LS	1	\$25,000	\$25,000
Equipment Package Includes	LS	1	\$692,908	\$692,908
1-Submerged bar screen				
1-Automatic mechanical bar screen				
6-25 hp Blowers				
Bubble diffuser system for Reactor				
1-Prewired control Panel for Reactor				
Bubble diffuser system for Digester				

Item	Units	Qty	Unit Cost	Cost
6-5 hp Blowers				
3-Adjustable Airlift Decant				
Prewired control Panel for Main				
Plant				
6-1.5 hp Decant Pumps				
6-0.5 hp Sludge Waste Pumps				
Course Bubble diffuser system for				
Inlet Surge Tank				
2- 3 hp Blowers				
4-7.5 hp Surge/feed Pumps				
1-Prewired Control Panel for Surge				
Control Equipment				
6-0.75 hp Pumps				
6-7.2 hp Submersible Mixers				
2-1.5 hp Effluent Pumps				
Aluminum walkway, grating, handrails, and steps				
Set of belts for blowers				
Manual hoist for mixers				
2-Ferric sulfate feed system				
1-Portable dissolved oxygen meter				
Concrete Tanks	CY	560	555	\$310,800
Alum Feed System	LS	1	\$39,000	\$39,000
Filtration				
2-Microscreen filters	EA	2	\$64,500	\$129,000
Filter Pad	CY	14.0	\$500	\$7,000
Effluent Disinfection				
Sodium Hypochlorite Feed System	LS	1	\$6,400	\$6,400
Chemical storage area, includes Concrete, piping, and roofing	LS	1	\$10,016	\$10,016
Chlorine contact tank	CY	59	\$569	\$33,571
Generator/blower/control building	SF	1240	\$125	\$155,000
Generator	EA	1	\$75,998	\$75,998
Effluent Disposal				
Shallow Injection Wells	EA	4	\$6,000	\$24,000
SUB-SUB-TOTAL				\$1,588,551
Site work	%	10		\$158,855
Electrical	%	15		\$238,283
Yard Piping	%	15		\$238,283
Contingency	%	20		\$317,710
SUB-TOTAL				\$2,541,682

Item	Units	Qty	Unit Cost	Cost
TOTAL				\$8,719,050

Estimated Annual Operating and Maintenance
Costs Associated with Expansion of the
KWRU Wastewater Treatment Plant

	USBF	SBR
Operations Labor (\$/yr)	\$74,880	\$74,880
Electricity (\$/yr)	\$34,000	\$95,000
Operating Cost (\$/yr)		
(Includes: Chemicals)	\$18,000	\$120,000
Maintenance Cost (\$/yr)		
(Includes: Sludge Hauling and Repairs/Replacement)	\$10,000	\$80,000
Total	\$136,880	\$369,880

Estimated Annual Operating and Maintenance
Costs Associated with Construction of a New
FKAA Regional Wastewater Treatment Plant

	USBF	SBR
Operations Labor (\$/yr)	\$74,880	\$74,880
Electricity (\$/yr)	\$34,000	\$95,000
Operating Cost (\$/yr)		
(Includes: Chemicals)	\$18,000	\$120,000
Maintenance Cost (\$/yr)		
(Includes: Sludge Hauling and Repairs/Replacement)	\$10,000	\$80,000
Total	\$136,880	\$369,880

Associated with Construction of a New FCAA Sub-
Regional Wastewater Treatment Plant for Geiger

Key

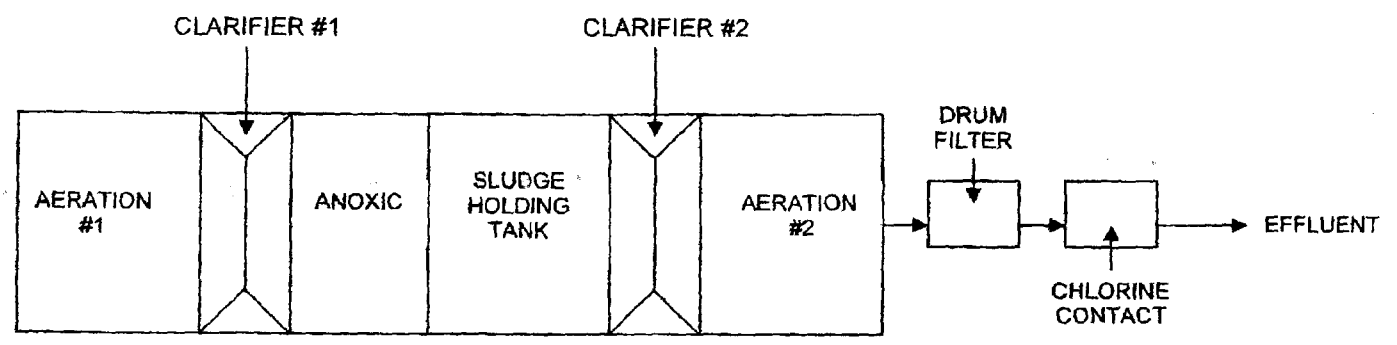
	USBF	SBR
Operations Labor (\$/yr)	\$74,880	\$74,880
Electricity (\$/yr)	\$6,300	\$21,700
Operating Cost (\$/yr)		
(Includes: Chemicals)	\$9,300	\$30,000
Maintenance Cost (\$/yr)		
(Includes: Sludge Hauling and Repairs/Replacement)	\$1,000	\$47,000
Total	\$91,480	\$173,580

Estimated Annual Operating and Maintenance Costs
Associated with Construction of a New FCAA Sub-
Regional Wastewater Treatment Plant for Rockland

	USBF	SBR
Operations Labor (\$/yr)	\$74,880	\$74,880
Electricity (\$/yr)	\$6,300	\$21,700
Operating Cost (\$/yr)		
(Includes: Chemicals)	\$9,300	\$30,000
Maintenance Cost (\$/yr)		
(Includes: Sludge Hauling and Repairs/Replacement)	\$1,000	\$47,000
Total	\$91,480	\$173,580

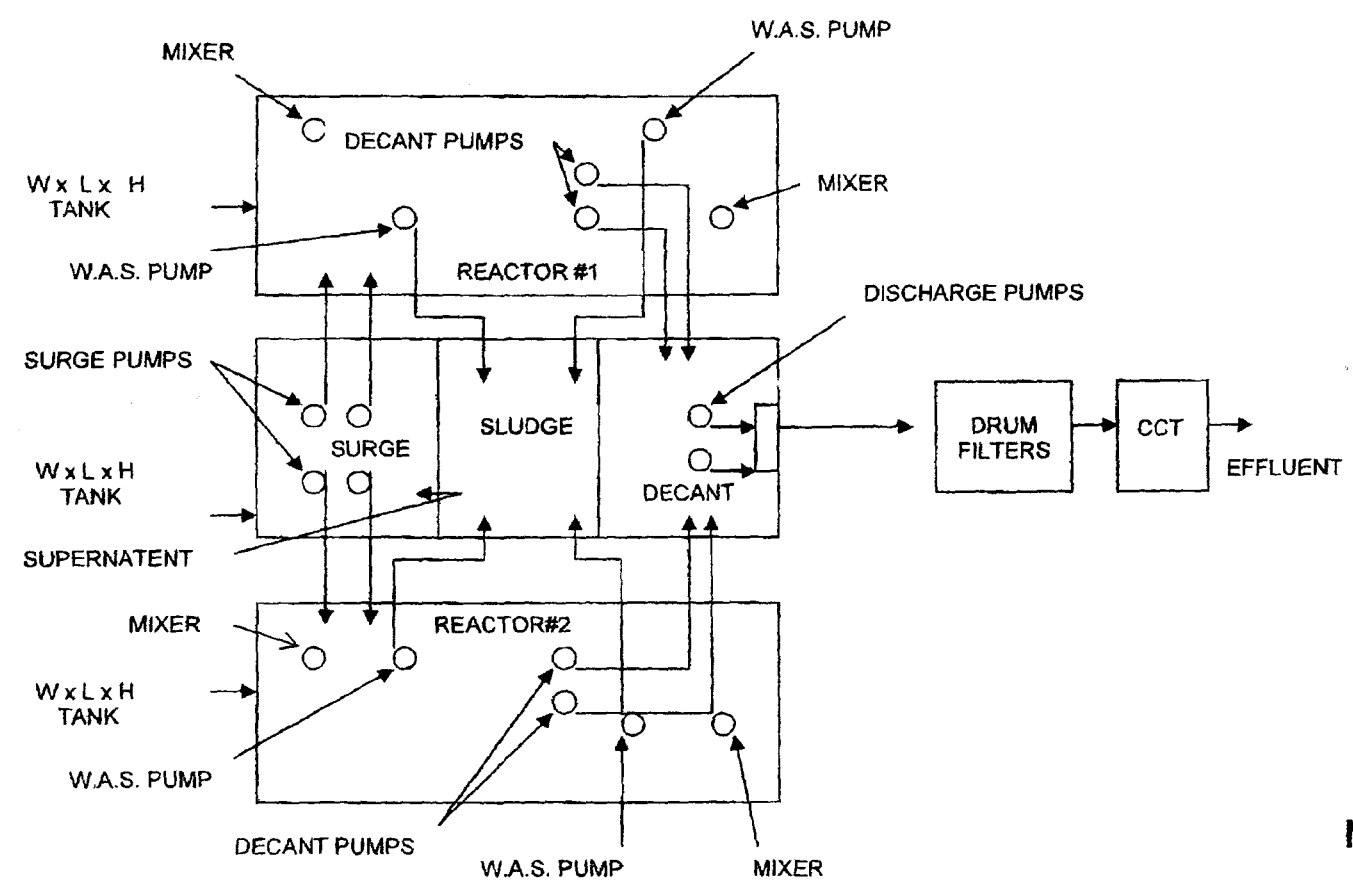
	USBF	SBR
Operations Labor (\$/yr)	\$74,880	\$74,880
Electricity (\$/yr)	\$20,000	\$50,000
Operating Cost (\$/yr)		
(Includes: Operations, Tes	\$37,000	\$95,200
Maintenance Cost (\$/yr)		
(Includes: Sludge Hauling and Repairs/Replacement)	\$1,170	\$44,600
Total	\$133,050	\$264,680

USBF SYSTEM DESIGN FLOW G.P.D.	CLARIFIER VOLUME GALLONS	ANOXIC VOLUME GALLONS	AERATION VOLUME GALLONS	SLUDGE HOLDING VOLUME GALLONS	DRUM FILTER MODEL #	CHLORINE CONTACT VOLUME GALLONS



NOT TO SCALE

S.B.R. SYSTEM DESIGN FLOW G.P.D.	REACTORS #1 & #2 VOLUME GALLONS	SURGE TANK VOLUME GALLONS	S.H.T. VOLUME GALLONS	DECANT EQUALIZATION VOLUME GALLONS	CHLORINE CONTACT TANK	DRUM FILTER MODEL #



NOT TO SCALE

REVISIONS	JOB #:	Regardless of Manufacturer
	JOB NAME:	FLOW DIAGRAM FOR SBR SYSTEM
	LOCATION:	
	DATE:	